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Research Paper

Early Syringomyelia in Tubercular Meningitis: A Rare Complication

Medicine

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DR. SHILPA AVAREBEEL	SENIOR RESIDENT, DEPARTMENT OF GENERAL MEDICINE, JSS MEDICAL COLLEGE HOSPITAL, MAHATMA GANDHI ROAD, MYSORE- 570004.
DR. MOHAN GOUDAR	PROFESSOR AND UNIT CHIEF DEPARTMENT OF GENERAL MEDICINE, JSS MEDICAL COLLEGE HOSPITAL, MAHATMA GANDHI ROAD, MYSORE- 570004.
DR. TEJASWINI C.J	ASSISTANT PROFESSOR, DEPARTMENT OF GENERAL MEDICINE, JSS MEDICAL COLLEGE HOSPITAL, MAHATMA GANDHI ROAD, MYSORE- 570004.
DR.K. A. SUDHARSHANA MURTHY	PROFESSOR AND HEAD OF THE DEPARTMENT DEPARTMENT OF GENERAL MEDICINE, JSS MEDICAL COLLEGE HOSPITAL, MAHATMA GANDHI ROAD, MYSORE-570004.
DR. SRINATH K.M	Associate Professor, DEPARTMENT OF GENERAL MEDICINE, JSS MEDICAL COLLEGE HOSPITAL, MAHATMA GANDHI ROAD, MYSORE- 570004.

ABSTRACT

Tubercular meningitis (TBM) can have varied early and delayed complications involving brain or spinal cord. Although syringomyelia can occur sometimes as a late complication of tubercular meningitis, its occurrence in early stages of TBM is very rare. There are only two published case reports of syringomyelia in acute stage of TBM. We report a patient with tubercular meningitis who developed syringomyelia in early disease course. A 26-year-old male presented with history of fever since 15 days and and 1 episode of generalised tonic clonic convulsions 1 day before admission followed by altered sensorium. Patient's history and clinical examination was suggestive of chronic meningitis. Cerebrospinal fluid analysis showed evidence of TBM. Patient was started on antitubercular drugs and during treatment course he developed acute onset of motor weakness of lower limbs. Magnetic resonance imaging (MRI) showed dorsal syrinx extending from D11 to L 1 region. After physiotherapy there was improvement in motor power.

• Introduction

• Tubercular meningitis (TBM) is the most common form of central nervous system tuberculosis and one of the leading cause of morbidity and mortality in developing world. TBM can have varied early and delayed complications including hydrocephalus, cranial nerve palsies, vasculitic infarction, arachnoiditis and tuberculoma involving brain or spinal cord. Sometimes syringomyelia can also occur as a late complication of tubercular meningitis [1]. Although syrinx formation in early stage of TBM is very rare. There are only two published case reports of syringomyelia in acute stage of TBM [2, 3]. Here we report a patient with tubercular meningitis who developed syringomyelia in early course of illness.

• Case Report

A 26-years-old male presented with history of fever, headache-for 15 days and one episode of generalised tonic clonic seizures one day before admission. Clinical examination revealed signs of meningeal irritation. Patient was fully conscious, irritable. Neurological examination showed left lateral rectus palsy and no other cranial nerve defecits, motor system examination was also unremarkable. His complete hemogram, blood glucose, blood urea, serum creatinine, serum bilirubin and transaminase levels were within normal range. Contrast enhanced CT scan head was normal.

Cerebrospinal fluid (CSF) analysis revealed leukocyte count 770cells/cubic mm with lymphocyte count 100%, glucose 32 mg% (Corresponding blood sugar 110 mg %; ratio 1/3) and protein level of 281mg%. CSF acid fast Bacilli (AFB) staining was negative. Cryptococcus antigen and India ink preparation for Cryptococcus was also negative. MRI brain showed thick enhancing sulcal and basal exudates and mild lateral ventricular dilataion (Figure 1-A)

• Considering clinical features of chronic meningitis and CSF picture suggestive of tubercular meningitis, he was started on first line antitubercular drugs, steroids and antiepileptics. After initiation of treatment patient showed improvement.During the course of hospital stay On Day 11 he developed weakness of lower limbs (MRC grade 0/5). He also developed inability to control micturition. Motor system examination revealed hypotonia of lower limbs. Deep tendon reflexes were absent in lower limbs. Plantar reflex were extensor bilaterally. MRI spine showed long segment dorsal syrinx extending from D11 to L1 level (Fig. 1-B). Patient was given physiotherapy and continued with antitubercular treatment and supportive care, patient showed some improvement in motor power (lower limbs 3/5 MRC grade) after three weeks.

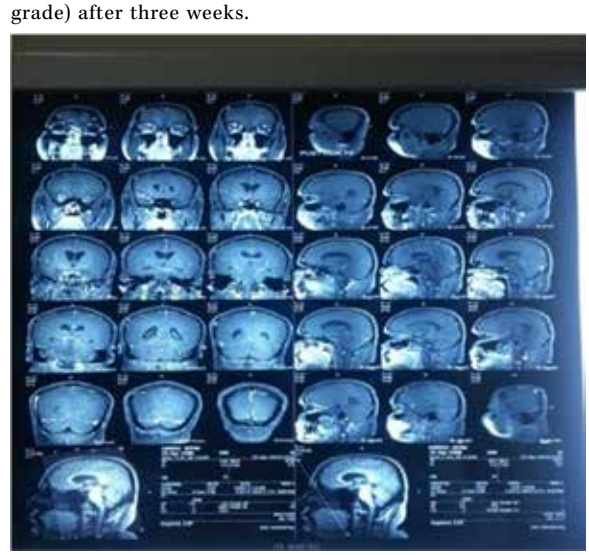

Figure 1.A. MRI BRAIN-Thick enhancing sulcal and basal exudates and mild lateral ventricular dilataion

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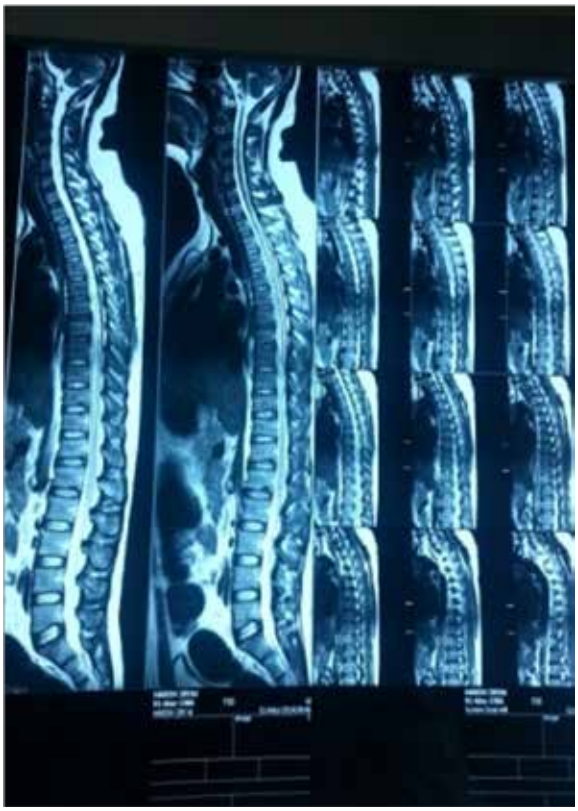

Figure 1. B- MRI SPINE-long segment dorsal syrinx extending from D11 to L1.

• Discussion

Syringomyelia is a known late complication of TBM. Only 26 cases have been reported about syrinx formation after tubercular meningitis. Usually the interval between TBM and syrinx formation varies from 7 - 28 years [3]. In our case syringomyelia developed in early stages of TBM during the treatment, which is very rare. Daif et al first time described two cases of syringomyelia in early course of tubercular meningitis (after 11 days and 6 weeks) [2]. Exact pathogenesis of syrinx formation in TBM is not known. However there are several proposed mechanisms in the syrinx formation after tubercular meningitis. Syrinx formation may be secondary to either an obliterative endarteritis causing ischemic injury or softening of spinal cord or may be because of post inflammatory scarring [4, 5]. Focal scarring due to inflammatory vasculitis may lead to blockage of the CSF circulation, thus forcing CSF into the central canal of the spinal cord through Virchow-Robin spaces. Obliteration of these perivascular spaces may also occur and lead to focal cystic dilatations of the spinal cord that eventually coalesce to form syrinx. The cause of rapidly progressive myelopathy in TBM has been attributed to vascular thrombosis of the spinal cord vessels. Spinal subarachnoid CSF space obstruction leads to a relative increase in the pressure inside the spinal cord distal to the block. This produces a pressure gradient between inside and outside the spinal cord in the segment distal to the blockage. Repetitive production of this pressure gradient at each CSF pulse causes leakage of CSF from the central canal, leading to interstitial oedema and the formation of a syrinx. Tubercular endarteritis producing softening of the cord, spinal subarachnoid space scarring leading to reduction in the compliance of the subarachnoid compartment and the patent Virchow-Robin spaces in the spinal cord providing a conduit for the CSF to enter into the central canal are three basic mechanisms in the formation of syrinx in TBM. In our case we postulated that spinal cord vascular thrombosis due to tubercular arteritis, contributed in pathogenesis of syrinx formation.

• Conclusion

In a patient with tubercular meningitis, development of new neurological manifestations like motor weakness should raise the possibility of syrinx formation after excluding common complications like vascultic stroke or spinal arachnoiditis.Compliance to the antitubercular treatment,physiotherapy and supportive care will be of benefit in patients who develop syrinx.

Disclosure

None.

Conflict of Interest

None.

Abbreviations

TBM: Tubercular Meningitis; CSF: Cerebrospinal fluid; MRC: Medical Research Council

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